UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner: Group: Attorney Docket # 1986

Applicant(s) : DIETRICH, J., ET AL

Serial No. :

Filed :

For : WIPER BLADE FOR CLEANING VEHICLE WINDOWS

SIMULTANEOUS AMENDMENT

January 22, 2002

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

S I R S:

Simultaneously with filing of the above identified application please amend the same as follows:

In the Claims:

Cancel all claims without prejudice.

Substitute the claims attached hereto.

REMARKS:

This Amendment is submitted simultaneously with filing of the above identified application.

With the present Amendment applicant has amended the claims so as to eliminate their multiple dependency.

Consideration and allowance of the present application is most respectfully requested.

Respectfully submitted,

Michael J. Striker
Attorney for Applicant(s)
Reg. No. 27233

Claims

1. A wiper blade (10) for windows, particularly of motor vehicles, having an elongated, rubber-elastic wiper strip (14), which can be placed against the window (22) and is connected to an elongated, spring-elastic support element (12) so that their longitudinal axes are parallel, which support element (12) is directly connected to a device for connecting the wiper blade to a driven wiper arm (18), where the support element (12) has two band-like spring strips (28, 30), which are situated in a plane that is disposed in front of the window, essentially parallel to the window, and whose one, lower band surfaces (13) are oriented toward the window and whose adjacent, inner longitudinal edges (48), which are disposed spaced a distance (34) apart from each other, each protrude into a respective longitudinal groove (54, 56, or 106), which grooves are associated with each longitudinal edge and are each open toward a respective longitudinal side of the wiper strip (14), and these two spring strips (36, 38) are connected to each other by at least two crosspieces (36, 38) disposed spaced apart from each other in the longitudinal direction, characterized in that each crosspiece (36, 38) has a middle section (42) which extends spaced a distance (44) apart from the upper band surfaces (11) of the spring strips (28, 30), producing bridge-like crosspieces (36, 38), where the distance (34) between the two longitudinal strips (28, 30) is less than the bridge width (46).

2. The wiper blade according to claim 1, characterized in that the crosspieces (36, 38) are embodied as separate components and are affixed to the two spring strips (28, 30).

3. The wiper blade according to [one of claims 1 or 2] claim 1, characterized in that the crosspieces (36, 38) are attached to the upper band surfaces (11) of the two spring strips (28, 30).

4. The wiper blade according to [one of claims 1 to 3] claim 1, characterized in that the crosspieces (36, 38) are welded to the two spring strips (28, 30).

5. The wiper blade according to [one of claims 1 to 4] claim 1, characterized in that the length (78) of the spring strips is greater than the length (76) of the wiper strip (14).

6. The wiper blade according to [one of claims 1 to 5] claim 1, characterized in that at least one crosspiece (36, 38) is disposed at each end section of the two associated spring strips (28, 30).

7. The wiper blade according to claim 6, characterized in that a crosspiece disposed in the middle region of the two associated spring strips (28, 30) is embodied as part (16) of a connecting device for connecting the wiper blade (10) to the wiper arm (18).

8. The wiper blade according to [one of claims 6 or 7] claim 6, characterized in that at least one of the two crosspieces (70) disposed at one of the respective end sections of the spring strips (28, 30) is provided with a stop (74), which is connected to its middle section (42) and partially covers the adjacent end (72) of the wiper strip.

9. The wiper blade according to claim 8, characterized in that the both of the crosspieces (36, 38) disposed at the ends of the support element (12) are provided with a stop (74).

10. The wiper blade according to [one of claims 1 to 9] claim 1, characterized in that each crosspiece (36, 38) disposed at the end sections of the two spring strips (28, 30) is provided with a covering cap (82) preferably made of plastic.

11. The wiper blade according to [one of claims 1 to 10] claim 1, characterized in that the thickness (64) of a wall (58) provided between the two longitudinal grooves (54, 56) in the wiper strip (14) is smaller than the distance (34) between the adjacent longitudinal edges (32) of the two associated spring strips (28, 30).

12. The wiper blade according to [one of claims 1 to 11] claim 1, characterized in that the wiper strip (100), which has a uniform cross section over its longitudinal span, has a strip-like wiper lip (101), which can be placed against the window and which, by means of a narrow intermediary strip (102) that is formed by groove-like constrictions (106) on opposite sides, is connected to a covering strip (104) secured to the support element (12), and in that each of the two adjacent inner longitudinal edges (32) of the spring strips (28, 30) is disposed in one of the two groove-like constrictions (106) of the wiper strip (100).

13. The wiper blade according to claim 12, characterized in that the lateral defining surfaces (108, 110) of the groove-like constrictions (106) diverge from the intermediary strip (102) to the longitudinal sides of the wiper strip.

14. The wiper blade according to claim 13, characterized in that one lateral defining surface (110) of the groove-like constrictions (106) has a spherical curvature, viewed in cross section.

15. The wiper blade according to claim 13, characterized in that both lateral defining surfaces (108, 110) of the groove-like constrictions (106) have a spherical curvature, viewed in cross section.

16. The wiper blade according to [one of claims 12 to 15] claim 12, characterized in that the wiper lip (101) is provided with a completely closed longitudinal conduit (118).

17. The wiper blade according to [one of claims 12 to 16] claim 12, characterized in that each spring strip (28, 30), at least with a central edge strip, protrudes from its groove-like constriction (106).

Claims

1. A wiper blade (10) for windows, particularly of motor vehicles, having an elongated, rubber-elastic wiper strip (14), which can be placed against the window (22) and is connected to an elongated, spring-elastic support element (12) so that their longitudinal axes are parallel, which support element (12) is directly connected to a device for connecting the wiper blade to a driven wiper arm (18), where the support element (12) has two band-like spring strips (28, 30), which are situated in a plane that is disposed in front of the window, essentially parallel to the window, and whose one, lower band surfaces (13) are oriented toward the window and whose adjacent, inner longitudinal edges (48), which are disposed spaced a distance (34) apart from each other, each protrude into a respective longitudinal groove (54, 56, or 106), which grooves are associated with each longitudinal edge and are each open toward a respective longitudinal side of the wiper strip (14), and these two spring strips (36, 38) are connected to each other by at least two crosspieces (36, 38) disposed spaced apart from each other in the longitudinal direction, characterized in that each crosspiece (36, 38) has a middle section (42) which extends spaced a distance (44) apart from the upper band surfaces (11) of the spring strips (28, 30), producing bridge-like crosspieces (36, 38), where the distance (34) between the two longitudinal strips (28, 30) is less than the bridge width (46).

2. The wiper blade according to claim 1, characterized in that the crosspieces (36, 38) are embodied as separate components and are affixed to the two spring strips (28, 30).

3. The wiper blade according to claim 1, characterized in that the crosspieces (36, 38) are attached to the upper band surfaces (11) of the two spring strips (28, 30).

4. The wiper blade according to claim 1, characterized in that the crosspieces (36, 38) are welded to the two spring strips (28, 30).

5. The wiper blade according to claim 1, characterized in that the length (78) of the spring strips is greater than the length (76) of the wiper strip (14).

6. The wiper blade according to claim 1, characterized in that at least one crosspiece (36, 38) is disposed at each end section of the two associated spring strips (28, 30).

7. The wiper blade according to claim 6, characterized in that a crosspiece disposed in the middle region of the two associated spring strips (28, 30) is embodied as part (16) of a connecting device for connecting the wiper blade (10) to the wiper arm (18).

8. The wiper blade according to claim 6, characterized in that at least one of the two crosspieces (70) disposed at one of the respective end sections of the spring strips (28, 30) is provided with a stop (74), which is connected to its middle section (42) and partially covers the adjacent end (72) of the wiper strip.

9. The wiper blade according to claim 8, characterized in that the both of the crosspieces (36, 38) disposed at the ends of the support element (12) are provided with a stop (74).

10. The wiper blade according to claim 1, characterized in that each crosspiece (36, 38) disposed at the end sections of the two spring strips (28, 30) is provided with a covering cap (82) preferably made of plastic.

11. The wiper blade according to claim 1, characterized in that the thickness (64) of a wall (58) provided between the two longitudinal grooves (54, 56) in the wiper strip (14) is smaller than the distance (34) between the adjacent longitudinal edges (32) of the two associated spring strips (28, 30).

12. The wiper blade according to claim 1, characterized in that the wiper strip (100), which has a uniform cross section over its longitudinal span, has a strip-like wiper lip (101), which can be placed against the window and which, by means of a narrow intermediary strip (102) that is formed by groove-like constrictions (106) on opposite sides, is connected to a covering strip (104) secured to the support element (12), and in that each of the two adjacent inner longitudinal edges (32) of the spring strips (28, 30) is disposed in one of the two groove-like constrictions (106) of the wiper strip (100).

13. The wiper blade according to claim 12, characterized in that the lateral defining surfaces (108, 110) of the groove-like constrictions (106) diverge from the intermediary strip (102) to the longitudinal sides of the wiper strip.

14. The wiper blade according to claim 13, characterized in that one lateral defining surface (110) of the groove-like constrictions (106) has a spherical curvature, viewed in cross section.

15. The wiper blade according to claim 13, characterized in that both lateral defining surfaces (108, 110) of the groove-like constrictions (106) have a spherical curvature, viewed in cross section.

16. The wiper blade according to claim 12, characterized in that the wiper lip (101) is provided with a completely closed longitudinal conduit (118).

17. The wiper blade according to claim 12, characterized in that each spring strip (28, 30), at least with a central edge strip, protrudes from its groove-like constriction (106).